Science Goals @ CZT-I

(BH.....)

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Broadband Spectroscopy of BH
(0.5 keV – 150 keV)

CZT-I Spectrum: 20 – 150 keV (modelling)

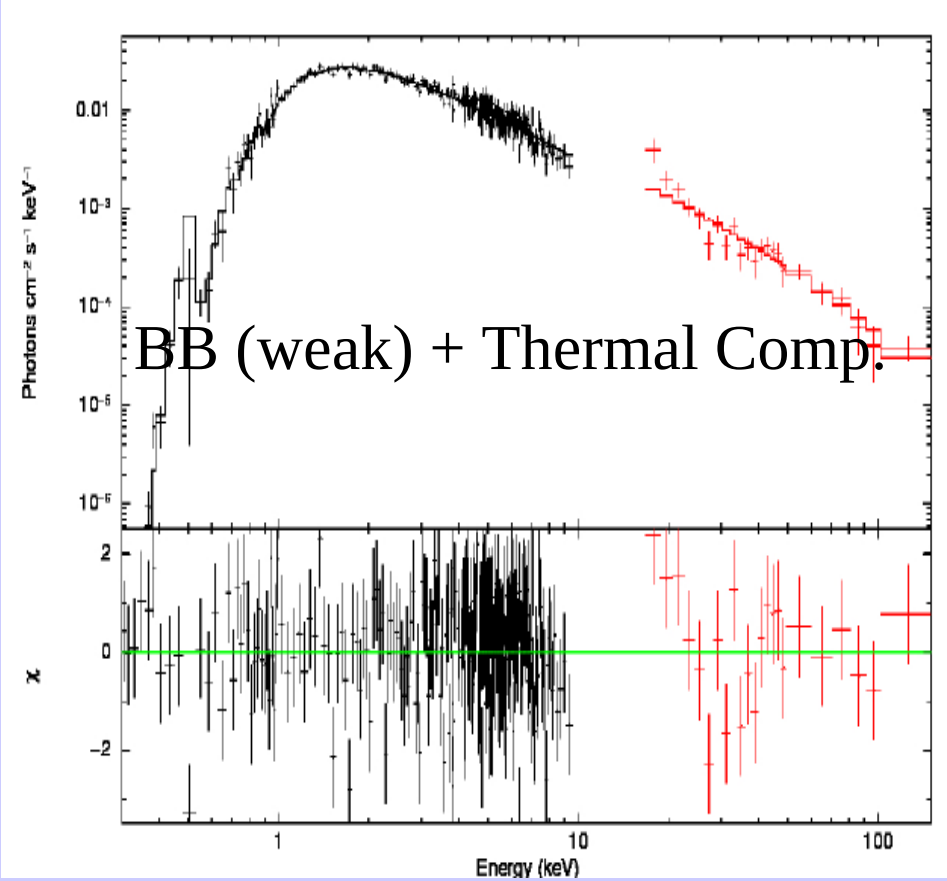
Radiative processes: Blackbody, Thermal Comptonization, Non-thermal (inverse-comptonization, synchrotron emission) etc.

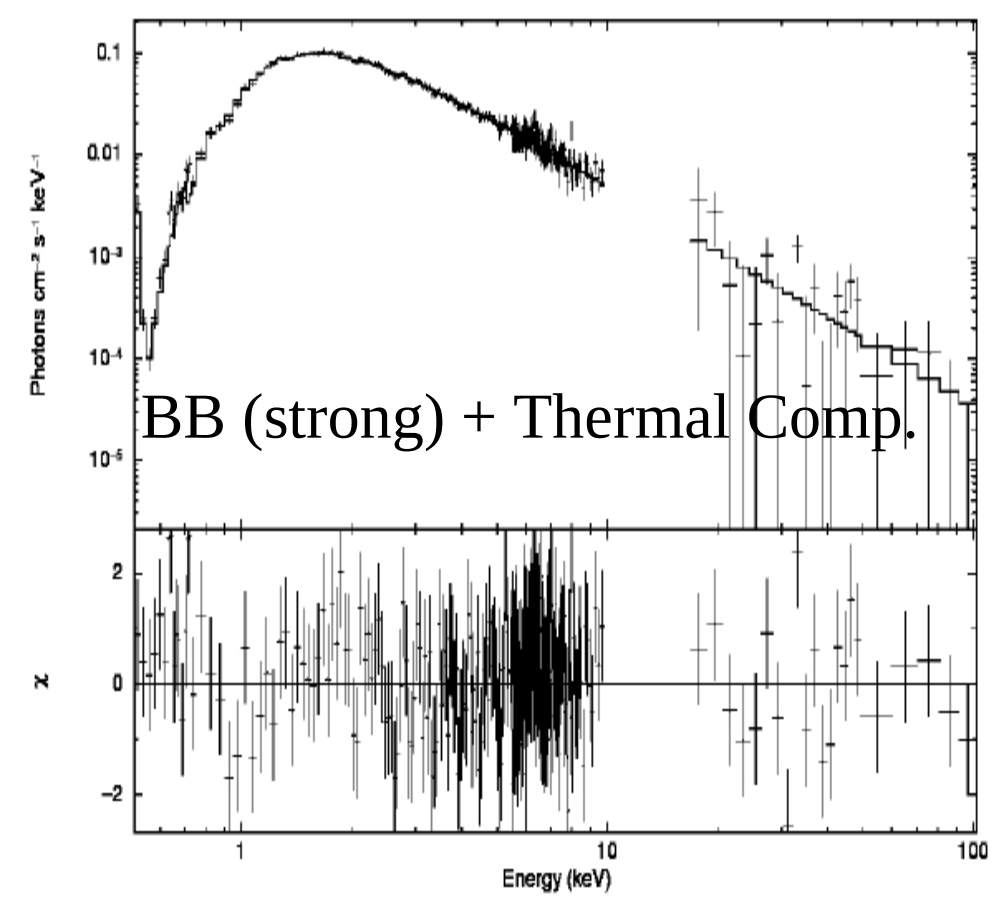
Multi-wavelength (multi-instrument) BH Spectrum:

SXT (0.5 – 8 keV) + LAXPC (3 – 60 keV) + CZT-I (20 – 150 keV)

Note: Cross callibartion @ each instrument is very very crucial!!!

Modeling of Broadband Spectrum (XSPEC based – 'astroBH' model?)





Non-thermal emission + Reflection component yet to be implemented.

Nature of the disk evolution during the outburst of GBHC (Multi-wavelength)

GBHCs show outburst with time period of few days to month due to increase in viscosity in the disk. It is important to monitor the source during the outburst phase in broad spectral band to answer the following questions,

- What decides the total time interval for an outburst phase?
- How outer edge of the disk evolves along with the companion (especially, during the rising and declining phase of the outburst)
- How QPOs and broad band spectrum evolve during the outburst?
- Energy dependent time-lag studies during the outburst.

- **Instrument:** UVIT/SXT/LAXPC/CZTI

- **Requirements:**

- UVIT – mostly in the rising and declining phase
- SXT – complete spectral band data
- LAXPC – for the QPO evolution in different spectral band (2 – 60 keV)
- CZT – 20 to 150 keV spectral band data